

SOURCES AND SINKS

The source of energy for many processes occurring on the earth's surface comes from the sun. Radiating solar energy heats the earth unevenly, creating air movements in the atmosphere. Therefore, the sun drives the winds, ocean currents and the water cycle. Sunlight energy is used by plants to create chemical energy through a process called photosynthesis, and this supports the life and growth of plants. In addition, dead plant material decays, and over millions of years is converted into fossil fuels (oil, coal, etc.).

Today, we make use of various sources of energy found on earth to produce electricity. Using machines, we convert the energies of wind, biomass, fossil fuels, water, heat trapped in the earth (geothermal), nuclear and solar energy into usable electricity. The above sources of energy differ in amount, availability, time required for their formation and usefulness. For example, the energy released by one gram of uranium during nuclear fission is much larger than that produced during the combustion of an equal mass of coal.

US ENERGY PRODUCTION (Quadrillion BTU)		
(Source: US DOE)	1975	2000
Coal	14.989 (24.4%)	22.663 (31.5%)
Natural Gas (dry)	19.640 (32.0%)	19.741 (27.5%)
Crude Oil	17.729 (28.9%)	12.383 (17.2%)
Nuclear	1.900 (3.1%)	8.009 (11.2%)
Hydroelectric	3.155 (5.1%)	2.841 (4.0%)
Natural Gas (plant liquid)	2.374 (3.9%)	2.607 (3.6%)
Geothermal	0.070 (0.1%)	0.319 (0.4%)
Other	1.499 (2.5%)	3.275 (4.6%)
TOTAL	61.356	71.838

An energy sink is anything that collects a significant quantity of energy that is either lost or not considered transferable in the system under study. Sources and sinks have to be included in an energy budget when accounting for the energy flowing into and out of a system.